

Biosafety and Biosecurity training curriculum in Kenya

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IPNET Conference

17th-20th November 2015



Background

- **Ministry of health work on communicable and non communicable diseases which are emerging or re-emerging**
- **This poses risk to health care workers as they strive to save lives**
- **As late as 2010 MOH had biorisk measures to protect HCW from exposure were minimal.**
- **CDC decided to come up with training curriculum and provide resources for biorisk management**

Background cont.....

- **Approached technical experts with knowledge on biorisk management to develop the curriculum**
- **Organized meetings within Nairobi and outside the city to develop the curriculum**
- **Completed in six months**
- **Meant for both TOTs and other technical staff**
- **TOTs were to reach out to the entire country for training**

Curriculum objectives

- **Train TOTs**
- **Train laboratory workers on biorisk management**

Modules

- **Biorisk**
- **Determination of biosafety levels**
- **Laboratory design and work flow**
- **Occupational health**
- **Blood borne pathogens**
- **Selection and use of Personal protective equipment (PPE)**
- **Chemical hygiene and inventory**
- **Risk assessment and mitigation**
- **Select agent determination**
- **Transport of dangerous goods**
- **Data security**

Biorisk

Biorisk = biosafety and biosecurity

- **Biosafety is the protection of HCW from exposure to infectious agents**
- **Biosecurity is the protection of the infectious agents from misuse by the HCW (release, diversion)**

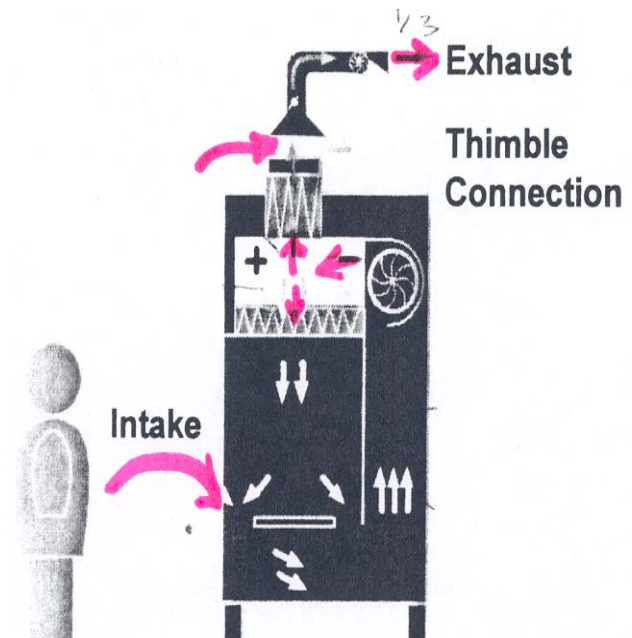
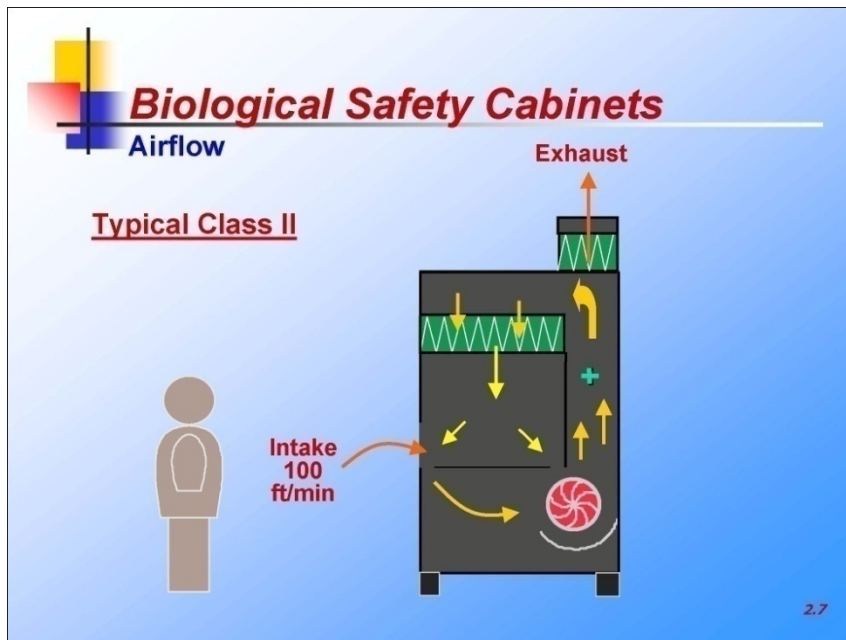
- **Biorisk can be implemented through a balance of engineering, PPE and containment controls**
- **Observation of biorisk management directly enhances infection prevention and control measures**

Biosafety levels and Biosafety cabinets

- **Understand the concept of Biosafety**
- **Describe the main elements in biocontainment**
- **Understand the criteria to assign an organism to the appropriate biosafety level 1-4**

Biosafety cabinets(BSCs)

- Principle: Protect personnel, agent and environment
- BSC1, BSC2(A1,2, b1,2), BSC3



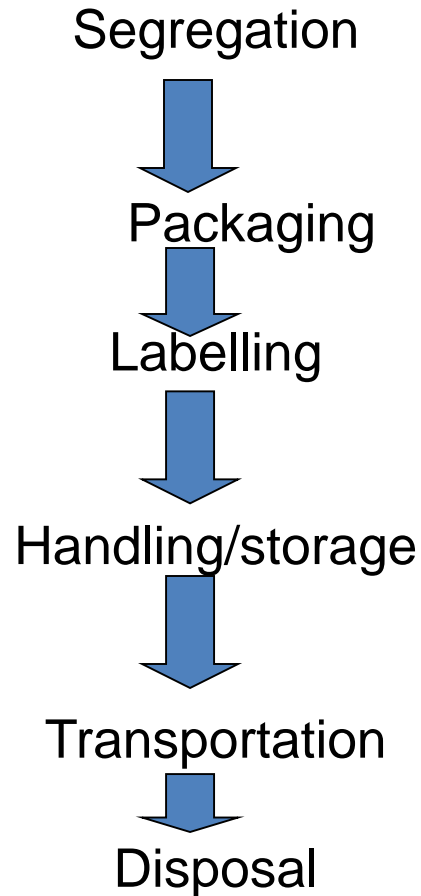
Chemical hygiene and inventory

- Physical & chemical characteristics
- The Right to Know Law
- Chemicals in the Work Place
- Location and Availability of MSDS
- Chemical inventory
- Disinfectants
- Preparation of disinfectants
- Spill kits and Choice of disinfectant

Waste management

- **Importance of waste management**
- **Waste management principles**
- **Laboratory waste procedures**
- **Treatment & disposal considerations**
 - ◆ Infectious waste treatment fundamentals
 - ◆ Incinerator issues
 - ◆ Incinerator quality control
 - ◆ Autoclave principles and validation
 - ◆ Autoclave quality control
 - ◆ Alternative waste control methods(shredding)

Waste Management Processes



Occupational health

- **Safety is everyone's responsibility**
- **Strategies for protecting workers**
 - Vital role of the risk assessment
 - Principles of medical surveillance
 - Pre & post exposure protocols
 - Possible vaccinations for preventable diseases
 - Need for hepatitis B vaccine
 - Advancing planning before work begins

Occupational health cont...

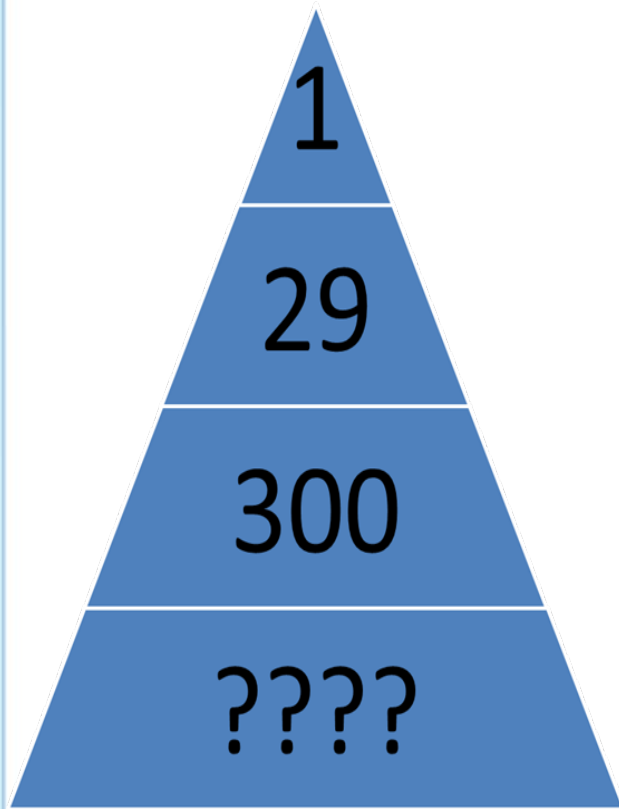
- The representatives of MOH policy makers were among the trainees
- The training raised awareness of the need for Hepatitis B vaccine (HBV) to laboratory workers
- The vaccine was procured to cater for national and county health HCW
- Vaccine was managed at national level for accountability

Occupational health cont.....

- **Medical surveillance program**
 - Evaluations of risk to employees and job



- Occupational health cont...



1 serious accident is preceded by 29 minor incidents which are preceded by 300 near misses which are preceded by ??? unsafe practices or unsafe conditions.

Personal protective equipment

- Selection
- Use & Limitations
- Donning / Doffing
- Common applications
- Fit testing



Risk assessment and mitigation

A biohazard risk assessment is a process which:

- Performs a site-specific evaluation
- Evaluates risk posed by the:
 - **Agent**
 - **Activities/Procedure (s)**
 - **Worker**
 - **Environment**
 - **Community**
- Numerous ways to perform this process

Transport of dangerous goods

- ☣ **Terms used for shipping**
- ☣ **Classification of infectious substances**
- ☣ **Packaging of infectious substances**
- ☣ **Labelling and marking packages**
- ☣ **Shipping documentation**
- ☣ **Shipping with dry ice**
- ☣ **Documentation of shipment**

Select agent determination

- **What are select agents?**
- **Examples of select agents**
- **How to identify select agent**
- **Determining the level to handle the agent**
- **Security concerning select agents**
- **When/Who to store select agents**
- **Destruction of select agents**

Accomplishment

- **175 TOTs trained and certified**
- **More than 3000 laboratory workers trained in 48 counties**
- **MOH appointed biorisk manager**
- **Biorisk representatives appointed at county levels**
- **HBV vaccination to laboratory workers introduced at MOH**
- **Procured and installed 7 BSCs I high volume hospitals**

Challenges

- **Lack of enough funding to train all Health care workers**
- **Limited partners to support the program**
- **Negative attitude among HCW towards biorisk implementation**
- **Lack of follow up after training to access implementation**

Conclusions

- **The curriculum was completed and adopted for training to enhance safety and infection prevention and control of HCW**
- **National biosafety and biosecurity structure in place**
- **HBV vaccination to HCW adopted**
- **Need for continued training and monitoring and evaluation of changed practices.**

END

- **THANK YOU!**